CHARLES COUNTY GOVERNMENT

Department of Fiscal and Administrative Services - Purchasing Division
Telephone: 301-645-0656

ITB NO. 22-24, CONSTRUCTION FOR CHARLES COUNTY LANDFILL CELL 4A

ADDENDUM NUMBER THREE

TO: All Bidders

Please be advised of the following modification(s) & information related to Invitation to Bid (ITB) 22-24. These modifications, comments, and attachments are hereby made a part of the solicitation documents to the same extent as if bound therein.

1. Changes – ITB Solicitation Document

A. Part B, Section 6.0 - Reports, Specifications & Drawings – Specifications

1. Specification 06651
    a. Delete Paragraph 06651.01.D.1.c of the Specifications Section in its entirety.

    b. Delete Paragraph 06651.03.G.3.b. of the Specifications Section in its entirety.

2. Specifications Section 06652

    Add Specifications Section 06652 as included in Attachment A of this addendum.

3. Section 06656. Paragraph 06656.01.C.2.c

    Delete the strikethrough text:

    Field Sampling – Samples of the delivered nonwoven, needle-punched geotextiles shall be obtained by the Contractor (for possible testing at a geotextile testing laboratory approved by the Engineer) at a frequency of one sample [at least four feet by four feet] for every 20,000 square feet of material installed in the cell. At least two samples of each nonwoven geotextile fabric installed shall be collected by the Contractor~~. If testing is deemed necessary by the Engineer, bedding geotextile samples shall be tested to determine unit weight, thickness, grab strength, puncture strength, and Mullen burst strength according to the methods listed in Table 06656-1.~~ Filter geotextile samples shall be tested to determine unit weight, thickness, grab strength, AOS (Apparent Opening Size), and permittivity (ASTM D4491). Each sample collected shall have the roll, lot, and manufacturer clearly marked on or attached to the sample. Sample shipping and testing shall be the responsibility of the Contractor. All samples not submitted for testing shall be properly stored onsite during construction and submitted to the Engineer at the completion of the project.

ATTACHMENT A – SPECIFICATIONS SECTION 06652

SECTION 06652

GEOSYNTHETIC CLAY LINER

06652.01 GENERAL

A. Description

1. The Work includes the manufacture, supply, delivery, testing, and installation of a geosynthetic clay liner (GCL) for placement on the prepared subbase surfaces as shown on the Plans and specified herein.

   GCL is a hydraulic barrier consisting of granular sodium bentonite clay bonded to a geomembrane.

2. The Work includes furnishing all materials, supplies, supervision, equipment, and construction machinery that may be necessary to construct the project as described in the Contract Documents.

B. Related Work Specified Elsewhere

1. General Provisions
2. Section 01400, "Quality Requirements"
3. Section 02125, "Landfill Cell Subgrade Preparation"
4. Section 02155, "Landfill Subbase"
5. Section 02500, "Piping Systems"
6. Section 06651, "High Density Polyethylene (HDPE) Liner"

C. Quality Assurance

1. Geosynthetic clay liner Manufacturer's Qualifications and Experience

   Manufacturer shall be a specialist in the manufacture of geosynthetic clay liner and shall have at least five years of experience in the manufacture of same. Liner manufacturer shall have manufactured at least two million square feet of geosynthetic clay liner during the last five years that were used in successful installations. Contractor shall submit documentation of the manufacturer's qualifications and experience with shop drawings for geosynthetic clay liner materials.

2. Installation Subcontractor's Qualifications and Experience

   The installation subcontractor shall be a specialist in the installation of geosynthetic clay liners and shall have at least five continuous years of experience

in the installation of geosynthetic clay liners. In addition, the installation subcontractor shall have installed at least two million square feet of geosynthetic clay liner during the last five years and be an "Approved Installer" of the liner manufacturer. Qualifications, references, and manufacturer certification of the installation subcontractor shall be submitted to the Engineer for approval. The Engineer reserves the right to reject the installation subcontractor based on the information submitted. The installation subcontractor shall be replaced with no delay in the contract schedule and at no additional cost to the County.

The installation subcontractor shall provide a field superintendent with demonstrated experience in GCL installation. The superintendent shall have supervised two installations in the past five years. The field superintendent shall be qualified to inspect the prepared subbase surface and supervise any corrective work required; supervise the unloading, handling, storage, unrolling, and placement of all liner sheets; Qualifications and references for the field superintendent shall be submitted to the Engineer for approval. The Engineer reserves the right to reject any field superintendent based on the information submitted. Any rejected field superintendent shall be replaced with no delay in the contract schedule and at no additional cost to the County.

Quality Assurance Program

All certified material reports, tests reports, and inspection reports for the GCL materials and installation, shall be documented within the Project Quality Assurance Program as delineated in Section 01400, Quality Requirements.

The Contractor shall have an independent quality assurance inspector, responsible for all aspects of the quality assurance program, including documentation and monitoring of the manufacturing and installation process.

E. Submittals

1. All submittals shall be in accordance with General Provisions.

2. Prior to shipping material to site
   a. Product datasheet.
   b. Handling, storage, and installation requirements
   c. Certification of quality control tests from manufacturer on GCL product
   d. Certification of quality control tests from manufacturer on Bentonite

3. Prior to installing GCL
   1) Certification signed by the Contractor and CQA Inspector of subgrade acceptance

4. Upon completion of GCL installation
   1) Certification by Installer that the GCL was installed per project specifications

2) Material and Installation Warranties

F. Product Delivery, Storage and Handling

1. General: Conform to the MANUFACTURER'S requirements and ASTM D5888 unless otherwise specified.

2. Delivery:
   a. Deliver material to the site only after the CQA Inspector accepts required submittals.
   b. Material shall be covered with a waterproof plastic covering resistant to ultraviolet degradation.
   c. Ship less than one month prior to scheduled installation unless otherwise approved by engineer.
   d. Each roll shall be marked with the following information
      1) manufacturer's name
      2) product identification
      3) roll number

3. Handling
   a. The QCA inspector shall verify that proper handling equipment exists which does not pose any danger to installation personnel or risk of damage or deformation to the liner material itself. Suitable handling equipment is described below:
      1) Spreader Bar Assembly - A spreader bar assembly shall include both a core pipe or bar and a spreader bar beam. The core pipe shall be used to uniformly support the roll when inserted through the GCL core while the spreader bar beam will prevent chains or straps from chafing the roll edges.
      2) Stinger - A stinger is a rigid pipe or rod with one end directly connected to a forklift or other handling equipment. If a stinger is used, it should be fully inserted to its full length into the roll to prevent excessive bending of the roll when lifted.
      3) Straps – A properly structured and supported pole or "carpet puller" can be used to unload GCL rolls onsite. As an alternative, straps that are appropriately rated and located across the roll can be used as an approved lifting method to unload GCL rolls

4. Storage
   a. Store rolls in space allocated by Owner. Space should be at high ground level or elevated above ground surface.
   b. Stack no more than 3 rolls high.
   c. Protect rolls from UV, precipitation, other sources of moisture, mud, dirt, dust, puncture, cutting or any other damaging or deleterious conditions.

d. Preserve integrity and readability of roll labels.
e. Bagged bentonite material shall be stored and tarped next to GCL rolls unless other more protective measures areavailable. Bags shall be stored on pallets or other suitably dry surface which will prevent undue prehydration.

5. GCL Inspection upon Delivery
   a. Each roll shall be visually inspected when unloaded to determine if any packaging or material has been damagedduring transit.
   b. Repairs to damaged GCL shall be performed in accordance with manufacturer's recommendations.
      1) Rolls exhibiting damage shall be marked and set aside for closer examination during deployment
      2) Minor rips or tears in the plastic packaging shall be repaired with moisture resistant tape prior to being placed in storage to prevent moisture damage.
      3) GCL rolls delivered to the project site shall be only those indicated on GCL manufacturing quality control certificates.
   c. Preserve integrity and readability of roll labels.

Warranties

1. Material shall be warranted for free of defects for a period of 1 year from the date of GCL installation.
2. Installation shall be warranted against defects in workmanship for a period of 1 year from the date of GCL completion.

06652.02 MATERIALS

A. The bentonite shall have the following base properties:

1. a minimum of 0.75 pound per square foot of high shrink/swell sodium bentonite, testing method ASTM D5993.
2. a maximum moisture content of 40 percent, dryweight basis (in the finished GCL), testing method ASTM D2216.
3. swell index—minimum 24 ml per 2 grams, testing method ASTM D5890.
4. fluid loss—maximum 18 ml, testing method ASTM D5891.

B. The finished GCL shall have an effective hydraulic conductivity no larger than 1×10^{-9} m^2/m^2-s at 2 pounds per square inch (4.6 feet) of head,as specified. Testing method ASTM D5887.

C. **Geomembrane**

The geomembrane shall be textured HDPE.

D. **APPROVED MANUFACTURER**

SPECIFICATIONS – NOVEMBER 2021

GSE Environmental or approved equal.

06652.03 EXECUTION

A. Installation

The Contractor shall follow manufacturer's recommendation for installation.

1. Subgrade preparation and anchor trench shall be in accordance with Section 06651, "High Density Polyethylene (HDPE) Liner".

2. GCL Material shall be placed in general accordance with the procedures specified below, or modified to account for site specificconditions.

a. GCL Orientation – Geomembrane side shall be at the bottom.

b. GCL Panel Position - Where possible, all slope panels should be installed parallel to the maximum slope while panels installed in flat areas require no particular orientation.

c. Panel Deployment - GCL materials shall be installed in general accordance with the procedures recommended by the manufacturer, subject to site specific conditions which would necessitate modifications.

1) The GCL may be deployed on slopes by pulling the material from a suspended roll, or securing a roll end into an anchor trench and unrolling each panel as the handling equipment slowly moves backwards.

2) Deployment on flat areas shall be conducted in the same manner as that for the slopes, however, care should be taken to minimize "dragging" the GCL.

3) Slip sheets shall be required for use when installing over blown-film textured material or when the installationof blown film textured liner is performed over the GCL.

4) The contractor shall only install as much GCL that can be covered at the end of the day. No GCL shall be left exposed overnight. The exposed edge of the GCL shall be covered by a temporary tarpaulin or other such water-resistant sheeting until the next working day.

*****END OF ADDENDUM*****